WE CLAIM

1. A method of forming a compound Single Instruction/Multiple Data instruction, said method comprising:

selecting at least two Single Instruction/Multiple Data operations of a reduced instruction set computing type; and

combining said at least two Single Instruction/Multiple Data operations to execute in a single instruction cycle to thereby yield the compound Single Instruction/Multiple Data instruction.

2. The method of claim 1, further comprising:

evaluating a processing throughput of the compound Single Instruction/Multiple Data instruction; and

determining a power consumption of the compound Single Instruction/Multiple Data instruction.

3. The method of claim 2, further comprising:

associating an energy consumption value with at least one micro-operation of the compound Single Instruction/Multiple Data instruction; and

minimizing the sum of the energy consumption value.

4. The method of claim 1, wherein the compound Single Instruction/Multiple Data instruction includes a vector add-subtract operation.

5. The method of claim 1, wherein the compound Single Instruction/Multiple Data instruction includes a vector minimum-difference operation.

6. The method of claim 1, wherein the compound Single Instruction/Multiple Data instruction includes a vector compare-maximum operation.

7. The method of claim 1, wherein the compound Single Instruction/Multiple Data instruction includes a vector absolute difference and add operation.

8. The method of claim 1, wherein the compound Single Instruction/Multiple Data instruction includes a vector average operation.

9. The method of claim 1, wherein the compound Single Instruction/Multiple Data instruction includes a vector scale operation.

10. The method of claim 1, wherein the compound Single Instruction/Multiple Data instruction includes conditional operations on elements of a data vector.

11. The method of claim 10, wherein the compound Single Instruction/Multiple Data instruction includes a vector conditional negate and add operation.

12. The method of claim 10, wherein the compound Single Instruction/Multiple Data instruction includes a vector select and viterbi shift left operation.

13. A method of estimating a relative power consumption of a software algorithm, comprising:

establishing a relative energy database listing a plurality of micro-operations, each micro-operation having an associated relative energy value; and

determining the relative power consumption of the software algorithm incorporating one or more of the micro-operations based on the relative energy values of the incorporated micro-operations.

14. The method of claim 13, further comprising:

executing the software algorithm on a simulator; and

computing a sum of the relative energy values of the micro-operations contained in the executed software algorithm.

15. The method of claim 13, wherein:

at least one of the micro-operations of the software algorithm is executed on a Single Instruction/Multiple Data processing unit.

16. A method for estimating the absolute power consumption of a software algorithm, comprising:

determining a plurality of relative power estimates of instructions of a microprocessor;

simulating a software algorithm including one or more compound instructions; and

determining an absolute power estimate of a software algorithm to be executed by the microprocessor based on the relative power estimates.